

Application number 10/784,613
Amendment dated July 5, 2005
Reply to office action mailed January 4, 2005

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claim 1. (Currently amended) A method of receiving a signal using an integrated circuit, the integrated circuit comprising a signal path including a low-noise amplifier configured to receive the signal, a mixer having an input coupled to an output of the low-noise amplifier, and a low-pass filter having an input coupled to an output of the mixer, the method comprising:

determining a first signal strength at a first node in the signal path in the integrated circuit; and

reducing a switching current in the signal path by dynamically changing an impedance of a component in the signal path based on the first signal strength.

Claim 2. (Original) The method of claim 1 wherein the signal comprises a preamble portion and a data portion, the impedance of a component is changed while receiving the preamble portion, and the method further comprises receiving the data portion of the signal.

Claim 3. (Original) The method of claim 2 further comprising:
determining a second signal strength at a second node in the signal path, wherein the second node in the signal path is after the first node in the signal path.

Claim 4. (Original) The method of claim 3 wherein the impedance of the component in the signal path is also changed based on the second signal strength.

Claim 5. (Original) The method of claim 2 wherein the component in the signal path comprises a MOS transistor.

Claim 6. (Original) The method of claim 2 wherein the component in the signal path comprises a resistor.

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Claim 7. (Original) The method of claim 2 wherein the component in the signal path comprises a capacitor.

Claim 8. (Original) The method of claim 4 wherein the component in the signal path is included in the mixer.

Claim 9. (Original) The method of claim 4 wherein the component in the signal path is included in the low-pass filter.

Claim 10. (Currently amended) A method of receiving a signal comprising a preamble portion and a data portion using an integrated circuit, the integrated circuit comprising a signal path including a low-noise amplifier configured to receive the signal, a mixer having an input coupled to an output of the low-noise amplifier, and a low-pass filter having an input coupled to an output of the mixer, the method comprising:

determining a first signal strength at a first node in the signal path in the integrated circuit; and

while receiving the preamble portion of the signal, dynamically changing a bias current in the signal path based on the first signal strength, and while receiving the data portion of the signal, maintaining the bias current in the signal path.

Claim 11. (Original) The method of claim 10 wherein the method further comprises receiving the data portion of the signal.

Claim 12. (Original) The method of claim 11 further comprising:
determining a second signal strength at a second node in the signal path, wherein the second node in the signal path is after the first node in the signal path.

Claim 13. (Original) The method of claim 12 wherein the bias current in the signal path is also changed based on the second signal strength.

Claim 14. (Original) The method of claim 11 wherein the bias current is a bias current for the low-noise amplifier.

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Claim 15. (Original) The method of claim 11 wherein the bias current is a bias current for the mixer.

Claim 16. (Original) The method of claim 11 wherein the bias current is a bias current for the low-pass filter.

Claim 17. (Original) A method of receiving a signal using an integrated circuit, the integrated circuit comprising a signal path including a first circuit and a second circuit having an input coupled to an output of the first circuit, the method comprising:

determining a first signal strength at a first node in the signal path in the integrated circuit, wherein the first node is before the first circuit in the signal path;
dynamically changing a gain of the first circuit based on the first signal strength;
and

dynamically changing an impedance of a component in the second circuit based on the first signal strength.

Claim 18. (Original) The method of claim 17 wherein the signal comprises a preamble portion and a data portion, the gain and impedance are changed while receiving the preamble portion, and the method further comprises receiving the data portion of the signal.

Claim 19. (Original) The method of claim 18 further comprising:
determining a second signal strength at a second node in the signal path, wherein the second node in the signal path is after the second circuit in the signal path.

Claim 20. (Original) The method of claim 19 wherein the gain of the first circuit and impedance of the component in the second circuit is also changed based on the second signal strength.

Claim 21. (Original) The method of claim 18 wherein the first circuit is a low-noise amplifier.

Claim 22. (Original) The method of claim 18 wherein the first circuit is a mixer.

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Claim 23. (Currently amended) A wireless transceiver integrated circuit comprising:
a receiver comprising a signal path, the signal path comprising:
a low-noise amplifier;
a mixer having an input coupled to an output of the low-noise amplifier;
and
a low-pass filter having an input coupled to an output of the mixer; and
a first signal strength indicator circuit coupled to the signal path, and configured to determine a first signal strength;
wherein an impedance in the signal path is configured to be dynamically adjusted to reduce a switching current in response to the first signal strength.

Claim 24. (Original) The wireless transceiver of claim 23 further comprising:
a second signal strength indicator circuit coupled to the output of the mixer, and configured to determine a second signal strength,
wherein the first signal strength indicator is coupled to the output of the low-noise amplifier, and
wherein the impedance in the signal path is configured to be adjusted in response to the first and second signal strengths.

Claim 25. (Original) The wireless transceiver of claim 23 further comprising:
a second signal strength indicator circuit coupled to the output of the low-pass filter, and configured to determine a second signal strength,
wherein the first signal strength indicator is coupled to the output of the mixer,
and
wherein the impedance in the signal path is configured to be adjusted in response to the first and second signal strengths.

Claim 26. (Currently amended) A wireless transceiver integrated circuit comprising:

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a receiver comprising a signal path, the signal path comprising:
a low-noise amplifier;
a mixer having an input coupled to an output of the low-noise amplifier;
and

a low-pass filter having an input coupled to an output of the mixer; and
a first signal strength indicator circuit coupled to the signal path, and configured to determine a first signal strength, the first signal strength the strength of a signal comprising a preamble portion and a data portion;

wherein a bias current in the signal path is configured to be dynamically adjusted during the preamble portion of the signal in response to the first signal strength, and further configured to be maintained during the data portion of the signal.

Claim 27. (Original) The wireless transceiver of claim 26 further comprising:
a second signal strength indicator circuit coupled to the output of the mixer, and configured to determine a second signal strength,

wherein the first signal strength indicator is coupled to the output of the low-noise amplifier, and

wherein the bias current in the signal path is configured to be adjusted in response to the first and second signal strengths.

Claim 28. (Original) The wireless transceiver of claim 26 further comprising:
a second signal strength indicator circuit coupled to the output of the low-pass filter, and configured to determine a second signal strength,

wherein the first signal strength indicator is coupled to the output of the mixer,
and

wherein the bias current in the signal path is configured to be adjusted in response to the first and second signal strengths.

Claim 29. (Original) A wireless transceiver integrated circuit comprising:
a receiver comprising a signal path, the signal path comprising:

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a first circuit; and
a second circuit having an input coupled to an output of the first circuit;
and
a first signal strength indicator circuit coupled to the signal path, and configured to determine a first signal strength;
wherein a gain of the first circuit is configured to be dynamically adjusted in response to the first signal strength, and
wherein an impedance in the second circuit is configured to be dynamically adjusted in response to the first signal strength.

Claim 30. (Original) The wireless transceiver of claim 29 further comprising:
a transmitter comprising:
a power amplifier; and
an output-level-sensing circuit coupled to an output of the power amplifier,
wherein the output-level-sensing circuit is configured to dynamically adjust a gain of the power amplifier.